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Cleistogamy in *Heteranthera*.—WYLIE¹² has discovered that *Heteranthera dubia* is cleistogamous, and his investigation of the situation has led him to some interesting conclusions and questions. As he remarks, this plant "has developed a vegetative body well adapted to the submersed life, as shown by its vigorous and successful growth. It has failed, however, to attain floral specialization adequate to insure cross-pollination." He finds that there is no possibility of cross-pollination, except through flower elongation, "so that if seeds are to be set with certainty and in considerable numbers, it must be through close pollination under water, excepting the relatively few flowers so situated that they can reach the air, and these also seem to have acquired the habit of self-fertilization." He suggests that this species is a favorable one for experimental study in plant-breeding, since it grows readily, and if kept submerged sets seeds freely without further attention.—J. M. C.

A living physical system.—BRIGGS'S¹³ clear-cut picture of the living plant as a physical system which is absorbing energy and performing useful work is significant of the present trend of botanical thought. He suggests that the doctrine of vitalism is being restricted more and more as our knowledge of plant phenomena increases. He summarizes the situation as follows: "The mechanism of plant processes, not at present explainable on a physico-chemical basis, would be termed by the vitalistic school as 'vital,' by the physico-chemical school as 'unknown.'" He treats the subject under the following heads: (1) the efficiency of the plant system, (2) the growth rate, (3) gas exchange between the leaf and the air, (4) diffusion through perforate septa, (5) the ascent of sap. In closing he emphasizes the fact that as a means of efficiency in plant production it is important to have the fullest possible understanding of the physical and chemical processes associated with growth.—GEO. B. RIGG.

Leaf duration in evergreens.—In studies embracing 9 gymnosperms and 22 angiosperms, growing in the state of Washington, PEASE¹⁴ has investigated the duration of leaves and has endeavored to account for the variations displayed. The leaf age limit reaches from about a single year in *Rhamnus Purshiana* to 23 years in *Taxus brevifolia*. From determinations upon approximately 100 twigs of each species grown under a variety of conditions, graphs are plotted showing the range for each. Some of the factors found to be efficient in affecting duration are (1) age, mature trees having older leaves;

¹² WYLIE, ROBERT B., Cleistogamy in *Heteranthera dubia*. Bull. Lab. Nat. Hist. State Univ. Iowa 7:48-58. 1917.

¹³ BRIGGS, LYMAN J., The living plant as a physical system, Jour. Wash. Acad. Sci. 7:89-111. 1917.

¹⁴ PEASE, VINNIE A., Duration of leaves in evergreens. Amer. Jour. Bot. 4:145-160. fgs. 12. 1917.